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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/817,623 | 04/05/2004 | Toru Takeda | 251272US2S RE | 2816 |
| 22850 | 7590 | 06/15/2007 | EXAMINER | |
| OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | FULK, STEVEN J | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2891 | |
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| | | | 06/15/2007 | ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| | | | |
|------------------------------|-------------------------------|-------------------------------|--|
| Office Action Summary | Application No. 10/817,623 | Applicant(s) TAKEDA ET AL. | |
| | Examiner Steven J. Fulk | Art Unit 2891 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/604,100.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/29/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 20-24 and 30-32 are objected to because of the following informalities: Claims 20-24 contain the typographical error "claim19"; claims 30-32 contain the typographical error "claim29". Appropriate correction is required.

Reissue Applications

2. Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 6,346,464 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP § 1404, 1442.01 and 1442.04.

3. The reissue oath/declaration filed with this application is defective because the error which is relied upon to support the reissue application is not an error upon which a reissue can be based. Any error in the claims must be identified by reference to the specific original claim(s) in the issued patent and the specific claim language wherein lies the error. The error of failing to submit claim 19 does not identify an error in the issued patent (as claim 19 is not part of the issued patent)

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that renders the patent to be wholly or partly inoperative or invalid. See 37 CFR 1.175(a)(1) and MPEP § 1414.

4. Claims 1-32 are rejected as being based upon a defective reissue declaration under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the declaration is set forth in the discussion above in this Office action.

5. Claims 1-32 are rejected under 35 U.S.C. 251 as being broadened in a reissue application filed outside the two year statutory period.

A claim is broader in scope than the original claims if it contains within its scope any conceivable product or process which would not have infringed the original patent. A claim is broadened if it is broader in any one respect even though it may be narrower in other respects.

Independent claim 2 (Original) requires the impurity distribution to be uniform in the direction of irradiation, whereas independent claims 19 and 26 (New) do not require the impurity distribution to be uniform in the direction of irradiation.

Independent claim 12 (Original) states that the cross-sectional shape and cross-sectional area may be uniform in the direction of irradiation, whereas independent claim 28 (New) does not require the cross-sectional shape and cross-sectional area to be uniform in the direction of irradiation.

Independent claim 14 (Original) requires both the cross-sectional area and the impurity distribution to be uniform in the direction of irradiation, whereas independent claim 29 (New) requires neither the cross-sectional area nor the impurity distribution to be uniform in the direction of irradiation.

Accordingly, new claims 19 and 26 are broader in scope than original claim 2, new claim 28 is broader in scope than original claim 12, and new claim 29 is broader in scope than original claim 14.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2-13 and 19-28 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase "may be uniform" is indefinite as to whether or not the cross-sectional shape and cross-sectional area are required to be uniform. One of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 2 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Komori et al. '882.

Regarding claim 1, Komori et al. discloses a semiconductor device manufacturing method of forming a second conductivity-type region (fig. 1E, n-type region 5) by irradiating impurity ions onto a first conductivity-type semiconductor

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substrate (p-type substrate 1); wherein the impurity ion irradiated region is restricted by a shield mask (resist mask 30) intercepting the impurity ions and the impurity ion acceleration energy is controlled to provide a uniform impurity distribution in the direction of irradiation in the second conductivity-type region (col. 6, lines 13-15 & 63-65; uniform concentration distribution is formed by continuously increasing/decreasing implant energy).

Regarding claim 2, Komori et al. discloses a semiconductor device manufacturing method of forming a first (fig. 1D, 6) and second (fig. 1E, 5) conductivity-type region in a semiconductor substrate (1) by selectively irradiating impurity ions onto the semiconductor substrate (fig. 1D, mask 28 blocks implant of B ions; fig. 1E, mask 30 blocks implant of P/B/As ions); wherein the impurity distributions in the first and second conductivity-type regions are uniform in the direction of irradiation, and the impurity ion acceleration energy and the area of each region irradiated by the impurity ions are controlled so that the cross-sectional shape and cross-section area of the first and second conductivity-type regions on planes perpendicular to the direction of irradiation may be uniform in the direction of irradiation (col. 6, lines 13-15 & 63-65; uniform concentration distribution is formed by continuously increasing/decreasing implant energy).

Regarding claim 12, Komori et al. discloses a semiconductor device manufacturing method of forming a first conductivity-type region (fig. 1D, 6) and a second conductivity-type region (fig. 1E, 5) on a semiconductor substrate (1) by irradiating impurity ions onto the semiconductor substrate (fig. 1D, mask 28 blocks implant of B ions; fig. 1E, mask 30 blocks implant of P/B/As ions); wherein the

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regions irradiated by impurity ions are restricted by impurity ion intercepting shield masks which are in an inverted imaging relation to each other (fig. 1D, mask 28; fig. 1E, mask 30) so that the cross-sectional shape and the cross-section area of the first and second conductivity-type regions on planes perpendicular to the direction of irradiation may be uniform along the direction of irradiation, and the impurity ion acceleration energy is controlled to make the impurity ion distributions in the first and second conductivity-type regions uniform along the direction of irradiation (col. 6, lines 13-15 & 63-65; uniform concentration distribution is formed by continuously increasing/decreasing implant energy).

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven J. Fulk whose telephone number is (571) 272-8323. The examiner can normally be reached on Monday through Friday, 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SJF

Steven J. Fulk
Patent Examiner
Art Unit 2891

June 8, 2007

C. Chaudhari
Chandra Chaudhari
Primary Examiner